

Application No.:09/683,584
Amendment dated: November 10, 2003
Reply to Office Action of July 30, 2003

This listing of claims will replace all prior versions and listings of claims in this application:

a.) Listing of Claims

1. (Currently Amended) A welding apparatus for a welding process in a straight polarity configuration comprising:
a welding gun having means for feeding an electrode into the welding gun; and
the electrode comprising a sheath encapsulating a core having a core composition, the core composition comprising a combination of graphite and one or more compounds of potassium, the combination of graphite and compounds of potassium in the core composition not exceeding approximately 5% by weight; and, wherein the welding apparatus is adapted to couple to a power source of direct electrical current in a straight polarity (DCEN) configuration.
~~a power source for supplying electrical current to the electrode.~~
2. (Previously Amended) The welding apparatus of Claim 1, further comprising a gas source for supplying a shielding gas to the welding apparatus.
3. (Original) The welding apparatus of Claim 1, wherein the welding process is gas metal arc welding.
4. (Original) The welding apparatus of Claim 1, wherein the means for feeding the electrode into the welding gun comprise a wire drive and a wire reel.
5. (Original) The welding apparatus of Claim 1, wherein one or more compounds of potassium comprise $K_2 MnTiO_4$ and $K_2 SO_4$.
6. (Original) The welding apparatus of Claim 5, wherein the combination is selected from the range from about 0.3% to about 5.0%.

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7. (Original) The welding apparatus of Claim 2, wherein the shielding gas comprises a mixture of Ar and CO₂.

8. (Canceled)

9. (Canceled)

10. (Canceled)

11. (Canceled)

12. (Canceled)

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Canceled)

17. (Currently Amended) A welding process in a straight polarity configuration comprising:

providing a welding apparatus having means for feeding an electrode into the welding apparatus and means for supplying a shielding gas into the welding apparatus;

coupling the welding apparatus to a power source of direct electrical current in the straight polarity configuration (DCEN) and forming an arc;

feeding the electrode into the welding apparatus, the electrode comprising a sheath and a core having a core composition, the core composition comprising a combination of graphite and one or more compounds of potassium, the combination of graphite and compounds of potassium in the core composition not exceeding approximately 5% by weight; and

supplying the shielding gas into the welding apparatus to shield the electrode and the arc.

18. (Original) The welding process of Claim 17, wherein supplying the shielding gas into the welding apparatus comprises providing an external gas source.

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19. (Original) The welding process of Claim 17, wherein feeding the electrode into the welding apparatus comprises providing means for feeding the electrode that is external to the welding apparatus.

20. (Original) The welding process of Claim 17, wherein supplying the shielding gas comprises providing a mixture of Ar and CO₂.

21. (Original) The welding process of Claim 17, wherein the welding process is a gas metal arc welding process.

22. (Original) The welding process of Claim 17, wherein one or more compounds of potassium comprise K₂ MnTiO₄ and K₂ SO₄.

23. (Original) The welding process of Claim 22, wherein the combination is selected from the range from about 0.3% to about 5.0%.